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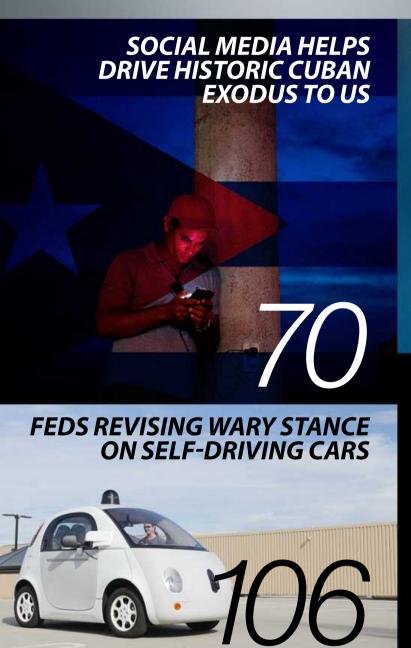


APP-ENABLED



BATTERY LIFE

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REVIEVV: SAMSUNG'S GEAR VR SHOVVS THE PROMISE OF VR _ TODAY

Samsung makes history of a sort Friday by launching the first major consumer-oriented virtual-reality headset. (It comes with an asterisk; prototypes and other not-quite-mass-market versions have been available for a while.) And its Gear VR headset is pretty impressive as first-generation devices go.

The biggest surprise after using the new Gear VR for a few days: There's a lot of stuff to watch and play in the virtual worlds the headset opens up. Granted, some of that material is gimmicky or amateurish. But the best of it hints at some of the mind-expanding experiences VR can make possible.





The Gear VR is relatively cheap, too, at just \$100. You do need your own headphones, preferably wireless, plus a recent Samsung phone - the Galaxy S6, S6 Edge, S6 Edge Plus or Note 5. If you don't already have one, the package could set you back nearly \$1,000. (Other VR systems will also need companion devices, such as high-end personal computers.)





Samsung developed the Gear VR with the virtual-reality startup Oculus (now part of Facebook). It supplants the \$200 "innovator edition" Samsung has sold for a year. That earlier prototype was mainly intended to build enthusiasm for VR and to help developers start producing games and apps for it. Samsung bills the new model as its first consumer VR product, although it still requires some savvy on the consumer's part to use.

ABOUT THE DEVICE

Your phone attaches to the front of the Gear VR headset, just in front of the lens for your eyes. Put the headset on, and your surroundings disappear as the phone screen opens a window into an unreal, three-dimensional world. As you turn your head, the image shifts accordingly to give the sense of being there in real life. You can even turn all the way around to see what's behind you. The screen projects slightly different perspectives to your left and right eyes to give the virtual world depth.

The Gear VR wasn't easy to set up. I had trouble figuring out where all the Velcro straps and hooks were supposed to go. I couldn't get the phone to snap into place. I needed the manual to find a lever I had to switch because I had a larger phone, the Note 5. Many consumers might need help from a tech-savvy friend or kid.

I also got frustrated having to wait for apps and video to download - a few minutes in some cases. The Gear VR can stream relatively few videos for instant playback.







And some apps were surprisingly absorbing. The notion of the Netflix app, which streams video to a virtual TV in front of you, initially seemed silly. Why not watch a real TV? Well, the virtual TV is huge, much larger than what I could afford in real life. And VR also removes the distractions surrounding you - such as Facebook.

Repeat viewings sometimes turned up unexpected detail. Not until a second viewing of a Cirque du Soleil video did I notice performers to my left and right. In a horror video, I initially kept my eyes on a woman in distress; only later did I see scary creatures crawling out of a playground. You're no longer stuck with whatever the director chooses for you.





But one video of the Oct. 13 Democratic presidential debate was disappointing. There were four VR cameras around the room, but you couldn't pick the one to watch. And in 3-D, candidates looked like dolls on stage. It was a novel idea, but it'll take time to figure out what works and what doesn't. This one was also long, while the best ones were typically a few minutes each.

A few apps also have interactive elements.

One lets you walk around a cafe depicted in the Vincent Van Gogh painting "The Night Cafe." Another lets you explore an island and solve puzzles to open doors. It made me nauseous, though.

It'll be great to see interactive storytelling, with plot lines that change depending on which rooms you choose to explore. And eventually filmmakers will rely less on stationary cameras. A VR piece featuring a hike with Reese Witherspoon could have let you hike with her, rather than watch from afar.

COMPARISONS

The Gear VR is meant for use while sitting down, ideally in a swivel chair. You can't walk around and explore your virtual environment. (You might trip over the ottoman or break things if you tried.)

The upcoming HTC Vive does offer that kind of walkabout experience, though you'll also need an uncluttered room. That offers the possibility of brand-new VR experiences, such as walking around Mars or a building you just designed.

The Vive, along with the Sony PlayStation VR and the Oculus Rift, will do much more than Gear VR, but will likely cost many times the \$100 the Gear VR will set you back. Samsung's gadget is impressive for the price.









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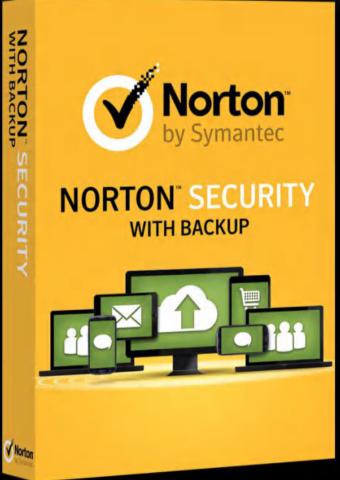
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CAN 'THE FORCE AWAKENS' BECOME THE BIGGEST MOVIE EVER?

Riding galaxy-sized expectations, the new "Star Wars" movie is already setting records for preopening ticket sales, with still a month to go. But does that mean the movie's destined to be the biggest of all time?

Though several signs point in that direction, the outcome isn't guaranteed.

The movie is on track to have the biggest December opening ever, topping "The Hobbit: An Unexpected Journey," which took in \$85 million in the U.S. and Canada on its opening weekend in December 2012.

Ticket seller Fandango says advance ticket sales for "Star Wars: Episode VII - The Force Awakens" has already topped every other movie, though it didn't provide figures. Imax says it has sold \$18 million domestically, double the previous record. Imax receipts account for a third of pre-release sales for this movie, putting the domestic total at more than \$50 million.

Whether it bests the biggest grosser of all time - "Avatar," with \$2.8 billion worldwide - depends on word of mouth and whether fans love it enough to watch it multiple times through the new year.

"Star Wars" will have the advantage of having weak competition for months. Marvel's "Deadpool" doesn't come out until mid-February, while Warner Bros.' "Batman v Superman: Dawn of Justice" isn't out until late March.

"I think it's going to own January," said Erik Davis, managing editor of Fandango, one of the nation's largest online ticket retailers. "I know one guy who has nine tickets to see it in the first week alone. That's what we're talking about."

A single ticket in big cities can cost \$25 or more after paying for extras like Imax and 3-D.

Social media activity is also off the charts, according to entertainment news website Moviepilot Inc.

Exactly a month from release, "The Force Awakens" had 405 million trailer and teaser views on Facebook and YouTube. That's 87 percent more than this summer's "Jurassic World," which opened domestically with a record \$208.8 million in ticket sales and owns the all-time No. 3 spot with \$1.7 billion worldwide. No. 2 is "Titanic," at \$2.1 billion.













What's more, the 178,000 weekly searches for the movie on Google is more than three times as high as "Jurassic World," which had 51,800 weekly searches a month from release, according to Moviepilot.

"People are searching and craving and demanding content," Moviepilot CEO Tobi Bauckhage said. "That's a very strong signal."

To be sure, December releases tend to be smaller than in the summer, so coming out on top may take a marathon rather than a sprint.

As for the all-time high, one thing "Avatar" had going for it: It rode a wave of consumer interest in 3-D, which costs a few dollars more than regular tickets. That frenzy has largely cooled off. Traditionalists with a nostalgia for the originals might prefer 2-D screenings, especially with director J.J. Abrams' use of more realistic-looking special effects like puppetry.

The Walt Disney Co., which owns "Star Wars" maker Lucasfilm, declined to comment.

Advance sales don't always equate to record grosses. The first installment of "The Hunger Games" was the leader in advance sales, but topped out at a worldwide gross of \$693 million, not even in the all-time Top 10.

What "The Force Awakens" benefits from, however, is interest that now spans multiple generations. The movie also has a much bigger Chinese box office to tap. "Avatar" pulled down a monstrous \$204 million in China through 2010, but the theatrical market there is now at least three times as big.

The big unknown is that no one's actually seen the movie yet.





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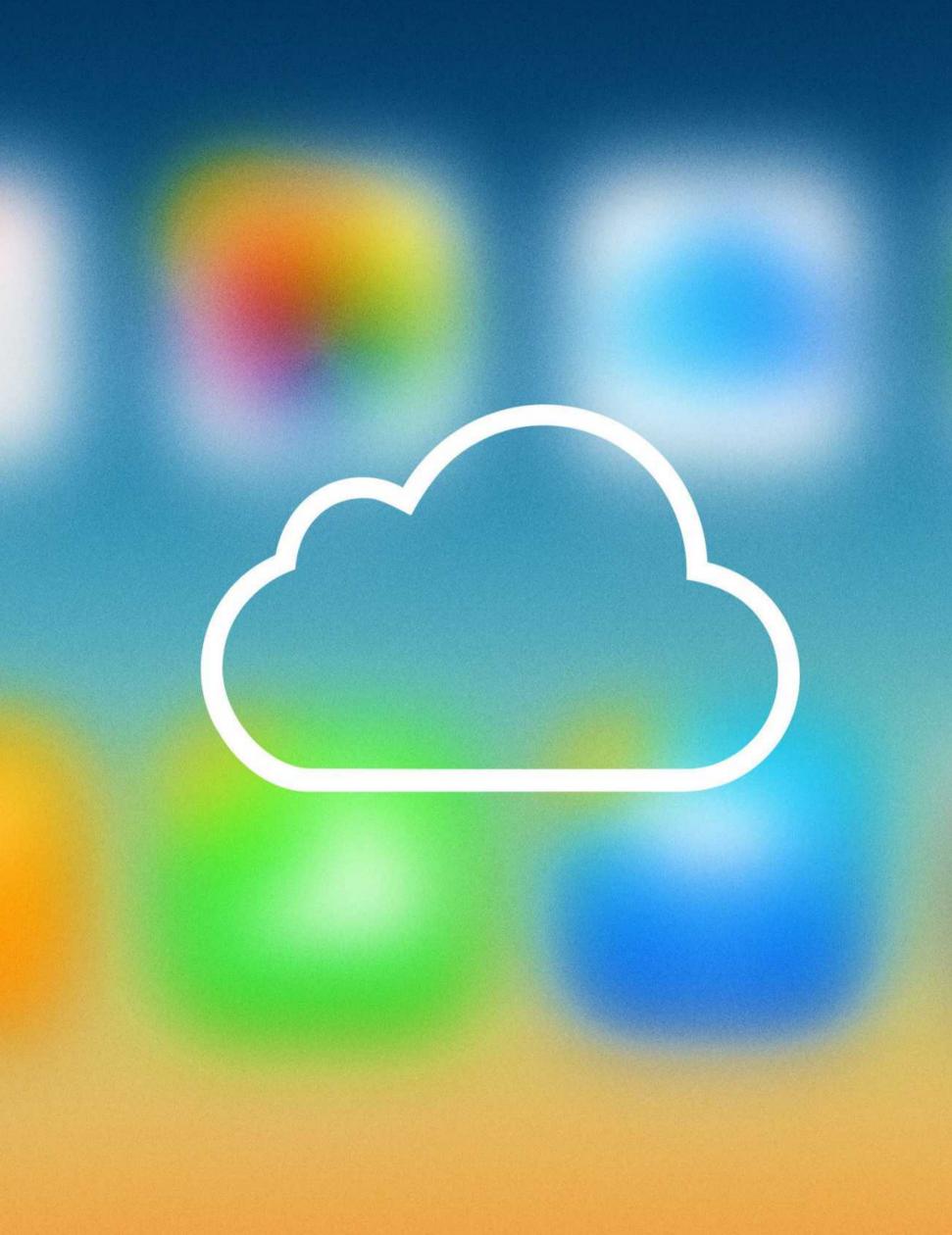
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iCloud: a Powerful Hub in Apple's Ecosystem

An Introduction to the Cloud and iCloud



"Cloud" is a word that has been more frequently bandied around in the tech sphere in recent years, and for good reason. Internet software and speeds have advanced to the extent where cloud computing is now more useful and convenient than ever. Apple's own cloud storage service, iCloud, has been a major beneficiary of this revolution - so, how can it genuinely assist users of the company's ecosystem? And how does the wider world of cloud computing shape up?

CLOUD COMPUTING: A NOVICE'S GUIDE

Anyway, what actually is cloud computing? It can be most basically described as software and services delivered entirely over the Internet. Cloud productivity apps, for example, are accessed and loaded within a web browser, rather than from a local drive. Similarly, cloud storage can see documents, photos and other files kept not on a hard drive or USB drive, but instead on the Internet. Everything is provided, to use the appropriate term, "in the cloud".

The blossoming popularity of mobile devices spearheaded by Apple has arguably encouraged the sophisticated development of cloud offerings in recent years, having given many companies incentive to provide their customers with an extra source of storage for the ready sharing of data between their smartphones, tablets and desktop and laptop computers. The provision of cloud-based apps has further cemented the appeal of the cloud for personal and corporate users alike.





ICLOUD: INTEGRAL TO THE APPLE ECOSYSTEM

Apple's history of offering online services stretches back long before the much-heralded launch of iCloud in 2011; earlier attempts included the short-lived eWorld in the mid-1990s and, in the following decade, MobileMe, which iCloud primarily replaced. However, iCloud, doubtless helped by the continually growing sales of iOS devices, has far surpassed its predecessors in popularity; the number of the service's users has been estimated to be as high as 450 million.

The features on offer through iCloud fall into two categories: cloud storage and cloud computing. At a more basic level, iCloud offers extra storage, starting from the free tier of 5GB, for data that the user wishes to have readily accessible but is unable to keep on the inbuilt drive of their Mac or iOS device. It can also be used for completely backing up - and, consequently, restoring - devices.

Meanwhile, for many Apple users who favor local over cloud storage and routinely back up their iOS devices' contents to their home computer through the iTunes software, iCloud can have huge appeal for easing productivity on the go. Using iCloud, it's perfectly possible for someone to start work on a text document or presentation on their home Mac or even Windows PC, continue tweaking it on their iPad during a train journey, and then pick it up again on their iPhone when walking to work.







9:41 AM 100% **Design Report** Design Report: Midcentury Icons iCloud Done Q Search Numbers SketchBook Pro Menu ding. ere is ian is Time Sheet House Remodel endstimes, it was only with the dawn of industrialization that the chair truly shifted into the sphere of design. Industrialists in the late 1800s experimented with new ways to manufacture products quickly and cheaply, and chairs of all kinds were made accessible to both aristocrats and factory workers. By the turn of the century, seating design was an essential component of artistic and cultural movements.

A CONSTANT WORK COMPANION

Why can iCloud provide such a seamless and hassle-free corporate experience? Put simply, because a variety of work projects can be continually saved to the same, constantly accessible place - the file hosting service called iCloud Drive. iCloud is firmly integrated with the three apps of Apple's iWork suite - Pages, Numbers and Keynote - available on iOS, OS X and even, since 2013, Windows through Pages for iCloud, Numbers for iCloud and Keynote for iCloud. Really? Yes - each of these apps can be used through the Chrome and Internet Explorer web browsers.

Therefore, even the many people who opt to pair their iOS devices with Windows computers, rather than Macs, can work largely within the Apple ecosystem, instead of having to settle for an awkward combination of Apple and Microsoft services and inadvertent formatting issues that could ensue. For example, workers don't have to worry about the possibility of crafting presentation slides to look a very particular way in Keynote, only to load the same file in the equivalent Microsoft software, PowerPoint, and find certain text or graphics looking disconcertingly out of place.

Such seamless working is also possible with tasks such as email writing and web surfing thanks to another iCloud feature, Handoff - which works with various first-party and third-party apps.

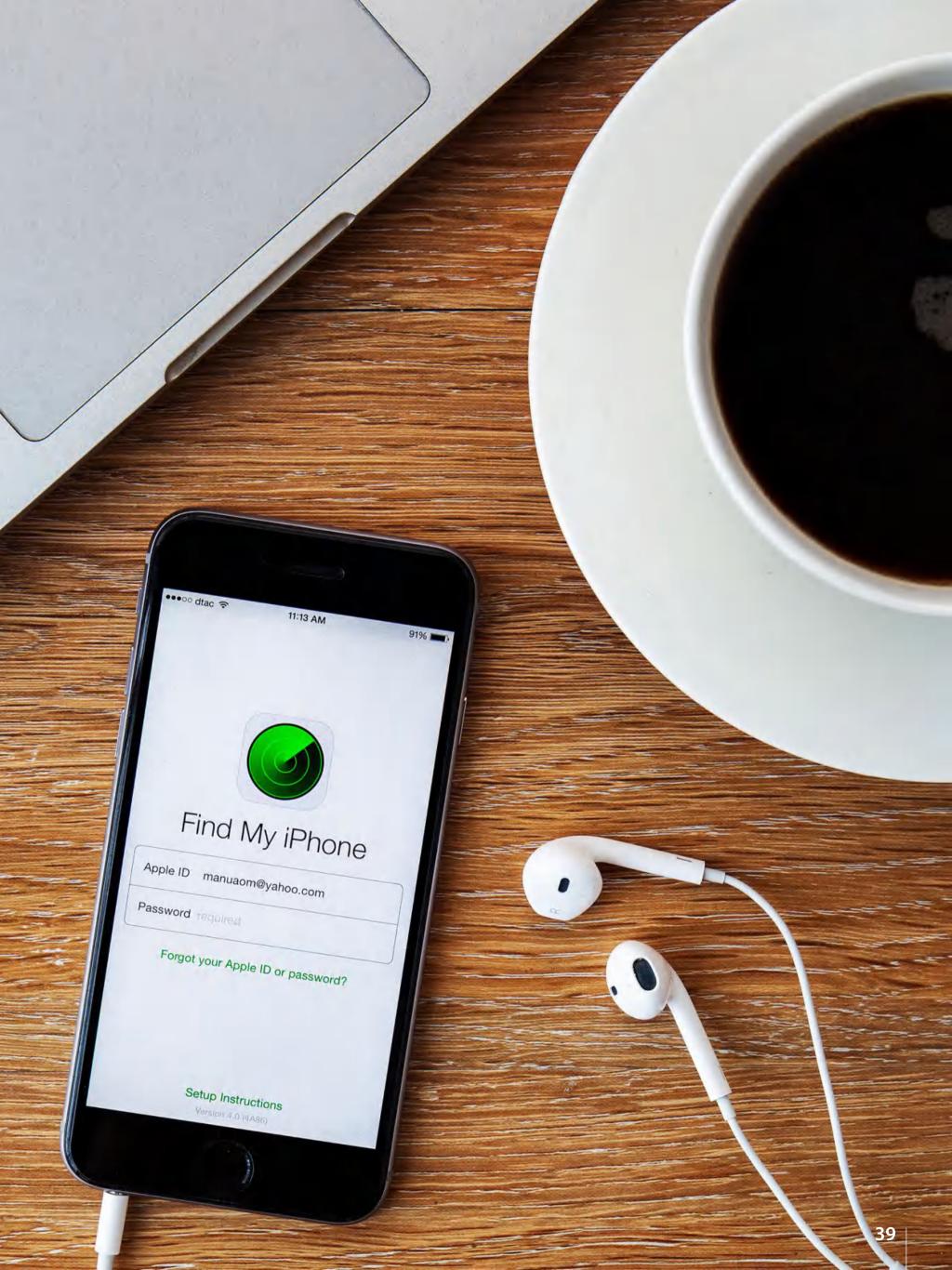
FINDING NEMO... OR YOUR IPHONE

Given how invaluable iOS devices and Macs could therefore prove for on-the-go productivity, it'd certainly throw a spanner in the works if, at some point, you reached for your Apple device only to find it... gone. Where is it? You need it! Thankfully, you can still get it. That's provided you have set up the Find My iPhone - or equivalent for iPad, iPod or Mac - app and service beforehand.

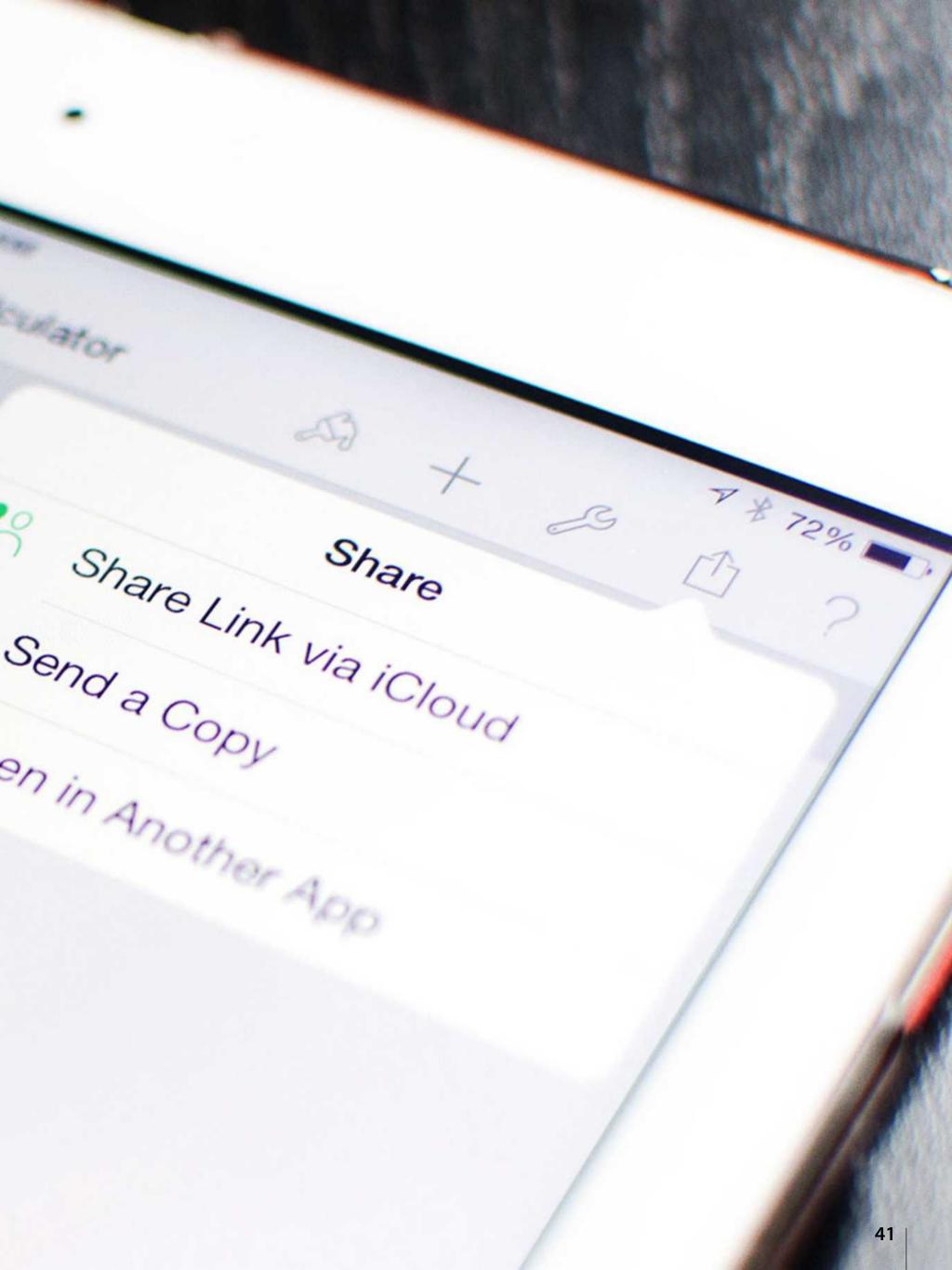
As we explained in the cover article of last week's issue of AppleMagazine, this wonderfully convenient service allows a misplaced device to be remotely location-tracked. The device's approximate location can be shown on a map on the screen of another iOS device or Mac, or a Windows computer. Find My... can even change the lost device's password or wipe its contents for extra security... but all of these services are highly dependent on iCloud, as is also the case with the similar Find My Friends app.

Should you indeed feel the need to remotely wipe your device's contents, you don't strictly have to fret about precious photos, like those of deceased relatives and friends, being deleted with them. Another feature present even in basic iCloud, Photo Stream, allows a user to keep their most recent photos - up to 1,000 - on the iCloud servers for up to 30 days without charge. Activated Photo Stream will also automatically send, from these servers, freshly-taken photos to the user's other registered devices.

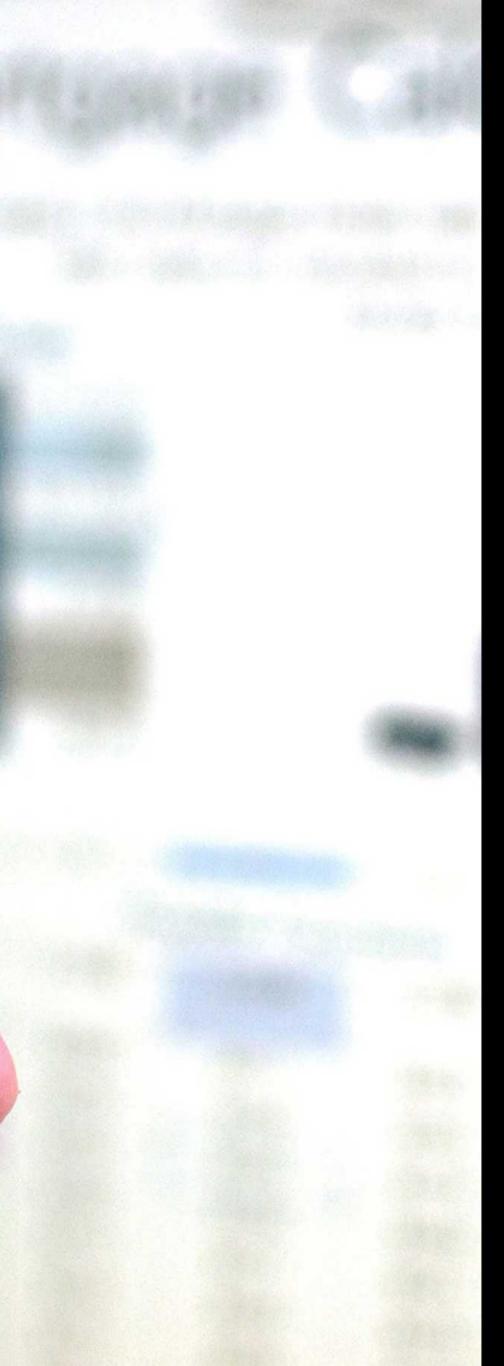












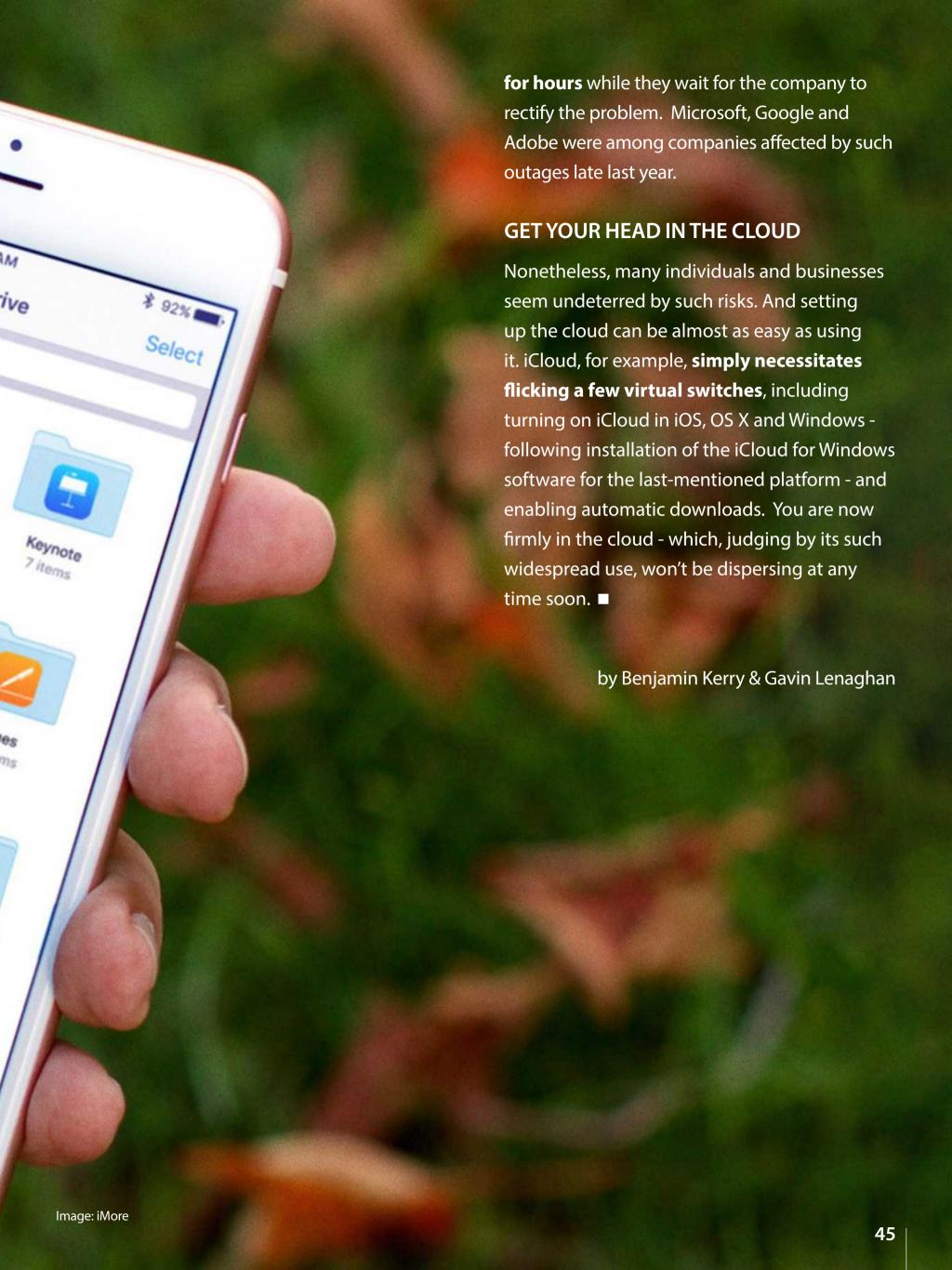
PROMISING, THEN - BUT NOT QUITE PERFECT...

Though iCloud has obvious appeal to Apple followers, there are many alternative cloud tools at their disposal. Microsoft, for example, allows the same kind of cross-device working through its iCloud Drive equivalent OneDrive and Office apps for iOS, OS X and web browsers. There's also Google Drive and Google Apps for Work. That's before we even consider, for the enterprise, the very different but also useful cloud-based Software as a Service, Platform as a Service and Infrastructure as a Service offerings from Oracle. Which of these services is best for you will depend on your specific needs and preferences.

You should also consider that, for all of the flexibility of the cloud, it isn't really the user who owns the cloud. Instead, ownership stays with the company providing it - leaving it less secure and assured than services and storage delivered from a local drive. At any moment, the provider could suddenly decide to revert on pledges previously made to its users and cut back on its cloud features - as many disgruntled OneDrive users found to their own cost in early November, when Microsoft unexpectedly announced significantly lowered storage limits for these users.

There is also more potential for crashes beyond users' control. When a piece of local software crashes or otherwise fails to work, a few minutes of tinkering or reinstalling can often solve the problem. However, as PCMag has pointed out, crashes in the cloud can take down many different services and leave users stranded



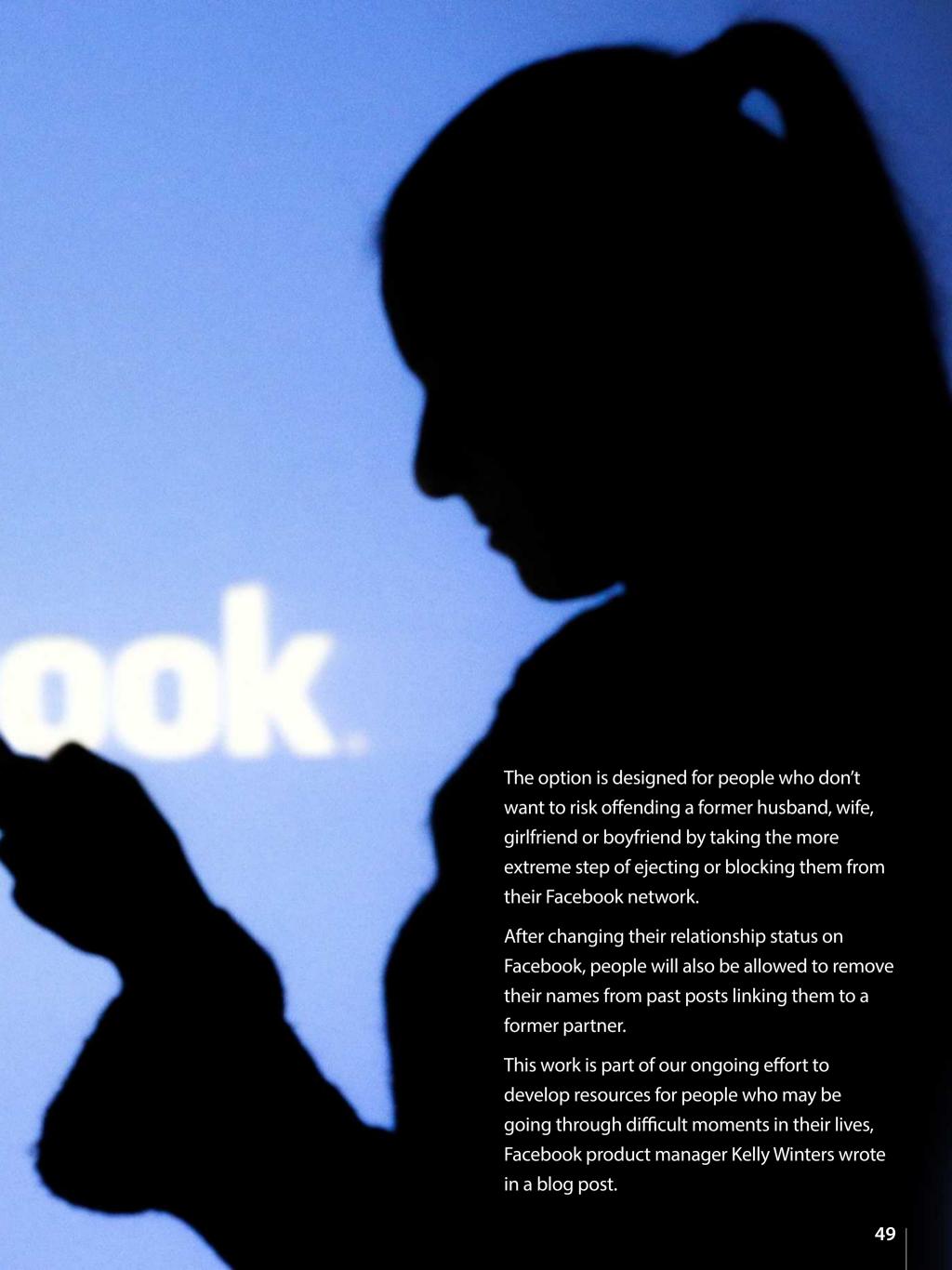


FACEBOOK TRIES TO EASE HEARTACHE OF BREAKUPS WITH NEW TOOL









The breakup protection serves as another reminder of how deeply ingrained Facebook has become in society. More than 1 billion people now hang out on Facebook at least once a day and those who have the network's addictive mobile application installed on their smartphones tend to visit even more frequently.

The Menlo Park, California, company has incentive to try to keep its users as happy as possible. People who become upset with what appears in their Facebook feeds are more likely to avoid coming to the network, depriving the company of the opportunity to collect more information about their preferences and show them ads aimed at those interests.

The formula has turned Facebook into a huge success story since Mark Zuckerberg founded the service in a Harvard University dorm room more than a decade ago. Facebook's market value now stands at \$300 billion.







BETTER BATTERIES TO BEAT GLOBAL WARMING: A RACE AGAINST TIME

One of the key technologies that could help wean the globe off fossil fuel is probably at your fingertips or in your pocket right now: the battery.

If batteries can get better, cheaper and store more power safely, then electric cars and solar-or wind- powered homes become more viable - even on cloudy days or when the wind isn't blowing. These types of technological solutions will be one of the more hopeful aspects of United Nations climate talks that begin next week in Paris.

"If you are serious about eliminating combustion of fossil fuels to power anything - a house, a city, a state - you can't do it without (energy) storage," which usually means batteries, said Carnegie Mellon University battery expert and inventor Jay Whitacre.

Former Vice President Al Gore, former U.S. Geological Survey chief (and current editor-inchief of the journal Science) Marcia McNutt and others point to better batteries as one of the bright spots in the fight against climate change.

While batteries have been around for more than 200 years, this year the technology has amped up.

In October, an international team of scientists announced a breakthrough in overcoming major obstacles in next generation energy storage and creating a battery that has five to 10 times the energy density of the best batteries on the market now. In September, Whitacre won a \$500,000 invention prize for his eco-friendly water-oriented battery. And in April, Elon Musk announced plans for his Tesla Motors to sell high-tech batteries for homes with solar panels to store electricity for night time and cloudy day use, weaning the homes off dirtier power from the burning of coal, oil and gas.

"The pace of innovation does seem to be accelerating," said JB Straubel, chief technical officer and co-founder of Tesla with Musk. "We're kind of right at the tipping point where the current performance and lifetime of batteries roughly equal that of fossil fuels. If you are able to double that, the prospects are huge."

At its massive Nevada Gigafactory, Tesla has started producing powerwalls to store energy in homes. They can't make them fast enough for customers worldwide.





In November, a Texas utility announced it was giving wind-generated electricity free to customers at night because it couldn't be stored. That's where Tesla hopes to come in - not just in cars, but in homes. Within 10 years, Straubel figures it will be considerably cheaper (and cleaner) to get energy through wind and solar power and store it with batteries than to use coal, oil or gas.

"What has changed is the Gigafactory," said Venkat Srinivasan, deputy director of the Joint Center for Energy Storage Research at the Lawrence Berkeley National Lab. "Two years ago I didn't think anyone would have thought you'd invest \$5 billion in a big (battery) factory."

Tesla is using existing technology, just mass producing and marketing it. That's one of two key changes in the field. The other is work to make the battery itself much more efficient.

Start with that lithium ion battery in your pocket. It was invented by John Goodenough, a professor at the University of Texas. His next task is a safer battery that uses sodium, a more plentiful element that can produce a faster charge.

"Now I hope to help free yourself from your dependence on fossil fuels," he said on the same October day he was awarded part of a \$1 million innovation-in-alternative-fuels prize from Israel.

"I believe in the next year there will be a breakthrough," he said. "I'm hopeful, but we're not there yet."





Glenn Amatucci, director of the energy storage research group at Rutgers University, called it "a race against time. Every day and every hour is critical in terms of getting an advance."

But Goodenough is in a special hurry, working more than eight hours a day on his battery: He's 93.

There are many teams around the world working on breakthrough batteries of different types. One of the most promising materials is lithium oxygen, which theoretically could store five to 10 times the energy of a lithium ion battery, but there have been all sorts of roadblocks that made it very inefficient. Then, last month a team led by Clare Grey at the University of Cambridge announced in the journal Science that they had, on a small scale, overcome one obstacle so that its efficiency could compete with lithium ion batteries.



The potential gains in this technology are high, but it is still at least seven to 10 years from commercial availability, Grey said.

At Carnegie Mellon and Aquion Energy, Whitacre is honing a water-oriented battery with sodium and carbon. Others are looking at magnesium.

Tesla's Straubel sees all sorts of different battery possibilities.

"It's an ongoing revolution," Straubel said. "It's a critical piece in the whole puzzle in how we stop burning fossil fuels completely."

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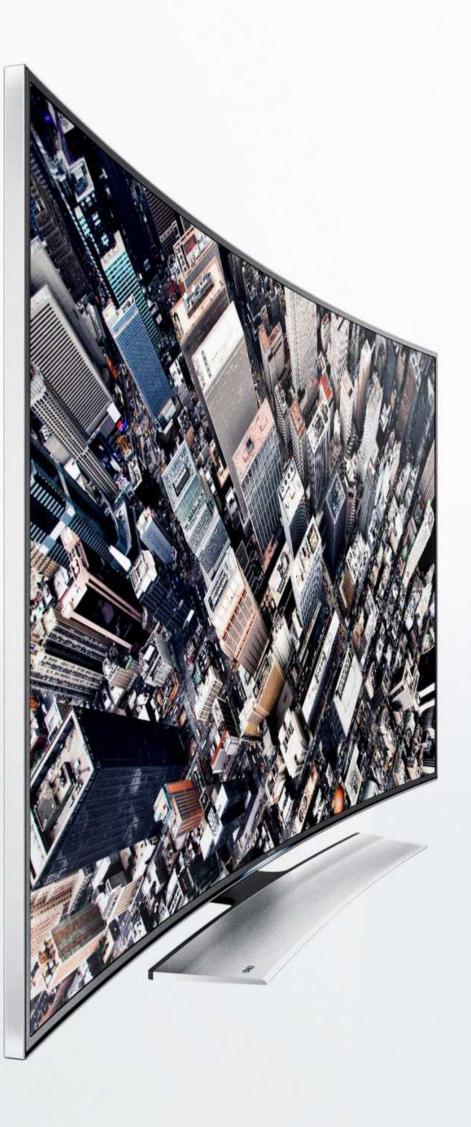
Tesla powerwall home battery

Lawrence Berkeley National Lab's Joint Center for Energy Storage Research





TV BUYING GUIDE: GET OUT TAPE MEASURE BEFORE SHOPPING



If you're shopping for a TV, get out a tape measure and do some quick calculations before you head to the store. And count the number of gadgets you'll want to connect to your screen.

Buying a TV is no longer just choosing how big a screen you want.

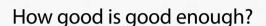
Here are some big decisions you'll face:

HD OR 4K?

There's an emerging picture standard that offers four times the pixels of today's high definition. It's known as ultra-high definition, or 4K. But do you need it?

Measure the distance between your couch and the spot for your new TV. If you're sitting far away, a regular HD set will be just fine - for \$100 to \$200 less.

The farther away you sit, the less the extra pixels matter, as your eyes won't notice the difference. Conversely, the bigger the screen you have, the worse the resolution will be, and you'll notice that more when you're closer up.



A rough rule of thumb: You should sit back a little more than 1.5 times the diagonal length of the screen for TVs with full HD, also known as 1080p. So if a screen is 48 inches, or 4 feet, that's 6 feet back. For 4K, it's one to one, or 4 feet for that same screen. If your couch is 7 feet back, having 4K isn't worth it because you won't be able to tell the difference anyway. But it might if your couch is 4 or 5 feet back.

The calculation isn't that easy, but we've created this online tool to help you: http://interactives. ap.org/2015/tv-buying-guide/

Also consider how little 4K content there is.

A few streaming services, including Netflix,
Amazon and M-Go, offer some 4K content, and a
standard for 4K Blu-ray discs is coming together
this year. But 4K broadcasts are potentially years
away. Buying a 4KTV now is mostly about being
ready for the future.

You also have to consider whether you'll be sitting so close to a big screen that you'll have to move your head to look left or right. Jim Willcox, senior editor at Consumer Reports, says the ideal viewing width is about 30 to 40 degrees. Our online tool will warn you if you are too close and might want a smaller screen instead.



HDMI PORTS

The more the merrier. TVs will have at least two, but I recommend three or four. If you pay for cable or satellite TV, you'll need one for your settop box, then one more for a streaming device or Blu-ray player. If you want to add a game console or sound bar, you see how quickly they can fill up.

Switches that let you connect multiple HDMI devices sell for \$9 to \$30, but that could mean another remote control to fiddle with, or getting up to press a button. Better to get extra ports with your TV.

SMART TV/WI-FI

Many TVs come with Wi-Fi connectivity and apps from major services like Netflix and Hulu. Using this for streaming will save you an HDMI port.

But stand-alone streaming devices have more features. If voice control is your thing, for instance, go for more ports to plug in your Apple TV, Amazon Fire TV or other device. Some TVs have voice control, but Apple's Siri will be better at recognizing your voice because it gets fine-tuned through millions of interactions on smartphones.

If you plan to use a smart TV for streaming, consider the type of Wi-Fi it comes with. The best right now is 802.11ac, which can deliver several gigabits per second of data. You'll want the best, especially for 4K video.







REFRESH RATE

Manufacturers fudge how fast images are refreshed on screen with technologies called "AquoMotion" or "Motionflow" that show "effective" refresh rates. These help smooth out fast-action scenes that might otherwise look stuttered or blurry. It's largely a matter of taste and personal sensitivity.

The minimum native refresh rate you'll see these days is 60 frames per second, or 60Hz. The most is around 120 Hz.

Steve Kindig, senior editor at electronics retailer Crutchfield.com, says that even though 60 frames per second is the highest that will come from Blu-ray discs or video games, higher rates on a TV will still cut down on blur. Either the TV's processor will interpolate frames between each actual frame, or the backlight will blink, reducing the stutter.

He says to play down effective refresh rates that are wildly higher than the native, though "it's not totally bunk because they are doing something."

Consumer Reports rates specific models with blur tests, but doesn't generalize about brands or numbers.







OTHER SCREEN FEATURES

Curved screens just look cool sitting on a stand, and some people say it cuts down on reflective glare, according to Kindig. They're about \$200 more than non-curved screens and mostly made by Samsung. But he says they don't look good mounted on a wall.

Organic light-emitting diode screens are pricey, but will give you true blacks and better color representation because each pixel illuminates on its own. Regular, LCD screens require a backlight, which can wash out the colors a bit. If you're willing to pay for OLED, you'll likely get every other goodie thrown in besides 4K.

More expensive sets might also offer 3-D. "Active" glasses require batteries, which add to the weight and trouble of wearing them, but will offer better resolution. "Passive" glasses, like the ones you get in movie theaters, will suffice for those few times you want to settle in for a 3-D movie, likely on disc. Content is still limited.



SOCIAL MEDIA HELPS DRIVE HISTORIC CUBAN **EXODUS** TO US

As summer began to bake the central Cuban city of Sancti Spiritus, Elio Alvarez and Lideisy Hernandez sold their tiny apartment and everything in it for \$5,000 and joined the largest migration from their homeland in decades.

Buying two smartphones for \$160 apiece on a layover on their way to Ecuador, they plugged themselves into a highly organized, well-funded and increasingly successful homebrewed effort to make human traffickers obsolete by using smartphones and messaging apps on much of the 3,400-mile (5,500-kilometer) overland journey that's become Cubans' main route to the U.S.

Some 45,000 Cubans are expected to move by bus, boat, taxi and on foot from Ecuador and other South and Central American countries to the Texas and California borders this year, afraid that the normalization of relations between the U.S. and Cuba will mean an imminent end to special immigration privileges that date to the opening of the Cold War. With thousands more taking rafts across the Florida Straits, 2015 may witness the biggest outflow of Cubans since the 1980 Mariel boatlift that hauled 125,000 people across the Florida Straits.

The overland exodus has caused a border crisis in Central America, set off tensions in the newly friendly U.S.-Cuban relationship and sparked rising calls in the U.S. to end Cubans' automatic right to legal residency once they touch U.S. soil.

At the heart of it all is Cubans' ability to cross some of the world's most dangerous territory relatively unscathed by the corrupt border guards, criminal gangs and human traffickers known as coyotes who make life hell for so many other Latin American migrants. Key to





that ability is the constant flow of information between migrants starting the journey and those who have just completed it.

"Those who've arrived have gotten in touch with their acquaintances, their friends, and tell them how the route is. That means that no one needs a coyote," said Hernandez, a 32-year-old psychologist. "You go making friends along the way. I myself have 70, 80-something friends on Facebook who've already gotten to the United States."

Cuban migrants start with an advantage others can only dream of: Many countries along the route grant Cubans free passage because their government does not respond to most requests for information about illegal migrants that would allow them to be deported. And many Cubans who run out of money along the way have access to hundreds or thousands of dollars in backup funds sent by relatives who belong to one of the United States' most prosperous immigrant groups.

Once they reach the U.S. border, they can just show up at an established U.S. port of entry and declare their nationality, avoiding the dangerous desert crossings that confront many migrants who try to avoid U.S. Border Patrol. Federal data shows 45,000 Cubans appeared at U.S. land border points in the 12 months ending Sept. 20, and at least as many are expected in the coming year.

But along the way, Cubans still must navigate jungles, rivers, at least seven international borders and countries in the grip of gangs responsible for some of the world's highest homicide rates.









Asked their secret, Cubans interviewed in shelters along Costa Rica's northern border with Nicaragua almost universally pointed to cheap smartphones, data plans and Facebook.

"We're completely, always, alert to our phones," Alvarez said, gesturing to his Samsung Galaxy S3 Mini outside a border statin in northern Costa Rica, where he and some 2,000 other Cuban migrants were stuck waiting for resolution of a regional conflict set off by Nicaragua's closure of the crossing. "This is our best friend, the phone. It's always on, always ready."

The metallic "zing!" of a new message arriving in the Facebook Messenger app has become the soundtrack to this year's historic migration as Cubans consult friends further along the route for tips on bus routes, border closures, even how much to bribe the notoriously corrupt Colombian police.

"They tell you when you can get money, at what moment you can arrive somewhere, what hotel to go to," said Annieli de los Reyes, pharmacist from the eastern city of Camaguey. "In all of those things, you run less risk and go with more security and peace of mind."

While many move across large swathes of territory independent of coyotes, others still depend on traffickers, most commonly when they need to get across complicated borders.

On Nov. 10, a U.S.-backed Costa Rican task force on human trafficking arrested 12 people suspected of helping run an international ring that charged Cubans between \$7,000 and \$15,000 to be smuggled from South America to the U.S. border, or \$400 to be moved safely across Costa Rica.





Alongside the anti-trafficking operation, Costa Rica began holding Cubans in the town of Paso Canoas on the Panamanian border. Their numbers grew to around 1,600 until Costa Rica announced on Nov. 13 that it would allow them to transit the country to Nicaragua. Complaining that it wasn't consulted, Nicaragua dispatched soldiers to the border to block the Cubans' passage, setting off minor clashes at the Penas Blancas crossing on Nov. 15.

The dispute has left some 2,000 Cubans stranded in shelters in Guanacaste province on the Nicaraguan border, with dozens more arriving daily. The local sales office for telecommunications company Movistar has increased the number of sales vans along the border from two to seven, most stationed permanently outside the Cubans' temporary encampments in schools and churches, selling 2-for-1 \$3-per-megabyte data packages to a steady stream of Cuban migrants.

Central America governments have called an emergency meeting on the crisis in El Salvador on Tuesday. Nicaragua, a close socialist ally of Cuba, has not publicly responded to a Costa Rican proposal to create a "humanitarian corridor" for Cubans to move unhindered toward the U.S.

Cuba, meanwhile, has made a series of public statements blaming U.S. emigration policies for drawing so many from their homeland, draining the country of badly needed professionals and working-age adults. Ironically, the Cuban government has been joined by an increasing number of Cuban-American legislators in the U.S. who say the Cold War-era Cuban

Adjustment Act that grants new migrants special privileges is being abused by economic migrants instead of granting asylum to political refugees as originally intended.

Outside observers say Cuba's own policies also fuel emigration, which siphons dissatisfied Cubans away from the island and increases the number of people injecting badly needed remittances into Cuba's cash-starved economy. The communist government did away with a hated exit permit three years ago and also began allowing Cubans to establish permanent residence in the U.S. while maintaining their property rights and access to social services in Cuba.

Geny Machado worked as a private shopkeeper in the Havana neighborhood of Guanabacoa before he hopscotched from Trinidad and Tobago to Venezuela, where he started a months-long journey north with stops to work and earn money for the next stages. Other Cubans interviewed in Costa Rica were making their way from as far south as Chile, Argentina and Brazil.

Machado showed a reporter a string of Facebook messages from a friend recently arrived in the U.S. advising him on the best route from Guatemala City to the Mexican border; what to say to Mexican border guards once he arrived; what hotel to stay at on his first night in Mexico; and even the nightly rate: \$10.

"The one who's ahead guides the one behind," said Machado, 45. "We go along communicating like that. Social networks are what's helping Cubans along the whole migration route, more than the coyotes."









When migrants are stopped by border guards along the route, officials' first step is contacting the migrant's country to confirm their identity. In the case of Cubans, that's often impossible. The Cuban government doesn't respond to as many as 90 percent of inquiries about people with Cuban passports but no visas, said Mario Madrazo Ubach, head of immigration control at Mexico's National Migration Institute. Since entering the country without a visa in itself isn't a crime in Mexico, Mexican authorities generally give the Cubans 20 days to leave the country, which they use to get to the U.S. border and claim legal residency. Similar scenarios take place throughout Central America.

"You're not going to find Cubans in the back of tractor-trailers," Madrazo said.

Still, Cubans are not immune to the dangers of northbound migration. A migrants' rights group said in July that Mexican border officials had been holding Cubans in border inspection stations until their relatives in the U.S. sent as much as \$5,000 to win their freedom.

Mario Martinez, 24, trained as a computer programmer but worked in a barber shop in the Havana neighborhood of Marianao until he left for Ecuador this fall with his friend and traveling partner Manuel Gonzalez. Sitting on the floor of a public bathroom next to the only available electrical outlet he could find in a bus station on the Costa Rica-Nicaragua border, he said that Facebook friends had been steering the two men away from coyotes, saying that "it was going to end up being very expensive, that they were going to charge us more money, that they could cheat us."





TOP Free Apps



#01 - Twist

By Ketchapp

Category: Games

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#02 - Facebook Messenger

By Facebook, Inc.

Category: Social Networking

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#03 – Instagram

By Instagram, Inc.

Category: Photo & Video

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#04 - Facebook

By Facebook, Inc.

Category: Social Networking

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#05 – YouTube

By Google, Inc.

Category: Photo & Video

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#06 - Snapchat

By Snapchat, Inc.

Category: Photo & Video

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#07 – iTunes U

By Apple

Category: Educatior

Requires iOS 8.3 or later. Compatible with iPhone, iPad, and iPod touch.



#08 - Pandora - Free Music & Radio

By Pandora Media, Inc.

Category: Music

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.



#09 – Amazon App

By AMZN Mobile LLC

Category: Shopping

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#10 – Pixduel™

By FEO Media

Category: Games

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#01 – OS X El Capitan

By Apple Category: Utilities Compatibility: OS X 10.6.8 or late



#02 – App for Instagram

By Joacim Ståhl
Category: Social Networking
Compatibility: OS X 10.7 or later. 64-bit processo



#03 – Full Deck Solitaire

By GRL Games Category: Games Compatibility: OS X 10.6.6 or later



#04 – Kindle

By AMZN Mobile LLC Category: Reference Compatibility: OS X 10.8 or late



#05 – ooVoo Video Call, Text and Voice

By ooVoo LLC Category: Social Networking Compatibility: OS X 10.7 or later, 64-bit processo



#06 – The Unarchiver

By Dag Agren
Category: Utilities
Compatibility: OS X 10.6.0 or later, 64-bit processor



#07 – Xcode

By Apple
Category: Developer Tools
Compatibility: OS X 10.84 or later



#08 – Fotor Photo Editor

By Chengdu Everimaging Science and Technology Co., Ltc Category: Photography Compatibility: OS X 10.6 or later, 64-bit processor



#09 - Microsoft OneNote

By Microsoft Corporation
Category: Productivity
Compatibility: OS X 10.10 or later



#10 – Evernote

By Evernote
Category: Productivity
Compatibility: OS X 10.9.0 or later, 64-bit processo





Mac OS X





#01 – Minecraft – Pocket Edition

By Mojang

Category: Games / Price: \$6.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#02 - Heads Up!

By Warner Bros.

Category: Games / Price: \$0.99

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#03 – Minecraft: Story Mode

By Telltale Inc

Category: Games / Price: \$4.99

Requires iOS 7.1 or later. Compatible with iPhone, iPad, and iPod touch.



#04 – Geometry Dash

By RobTop Games AB

Category: Games / Price: \$1.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#05 - Akinator the Genie

By Elokence

Category: Entertainment / Price: \$1.99

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#06 - Bloons TD 5

By Ninja Kiwi

Category: Games / Price: \$2.99

Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.



#07 – THE GAME OF LIFE Classic Edition

By Electronic Arts

Category: Games / Price: \$0.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#08 - True Skate

By True Axis

Category: Games / Price: \$1.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#09 – Facetune

By Lightricks Ltd.

Category: Photo & Video / Price: \$3.99

Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.



#10 – Last Horizon

By Pixeljam

Category: Games / Price: \$2.99

Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.



#01 - GarageBand

By Apple
Category: Music / Price: \$4.99
Compatibility: OS X 10 9 or late



#02 – AntiVirus Sentinel Pro

By Calin Popescu Category: Utilities / Price: \$9.99 ompatibility: OS X 10.7 or later, 64-bit processor



#03 - Splash it!

By Emad Ali Category: Photography/ Price: \$0.99 Compatibility: OS X 10.8 or later, 64-bit processor



#04 - PDF Expert by Readdle

By Readdle
Category: Productivity / Price: \$19.99
Compatibility: OS X 10.10 or later, 64-bit processo



#05 – Logic Pro X

By Apple
Category: Music / Price: \$199.99
Compatibility: OS X 10.8.4 or later, 64-bit processor



#06 – The Sims™ 2: Super Collection

By Aspyr Media, Inc. Category: Games / Price: \$29.99 Compatibility: OS X 10.9.2 or later



#07 – Duplicate Photos Fixer Pro

By Systweak Software Category: Photography / Price: \$0.99 Compatibility: OS X 10.7 or later



#08 – Document Writer

By xiong feng Category: Business / Price: \$9.99 Compatibility: OS X 10.7 or later



#09 – FaceTime

By Apple Category: Social Networking / Price: \$0.99 Compatibility: OS X 10.6.6 or later



#10 – Pixelmator

By Pixelmator Team Category: Graphics & Design / Price: \$29.99 Compatibility: OS X 10.9.5 or later, 64-bit processor







iTunes Preview







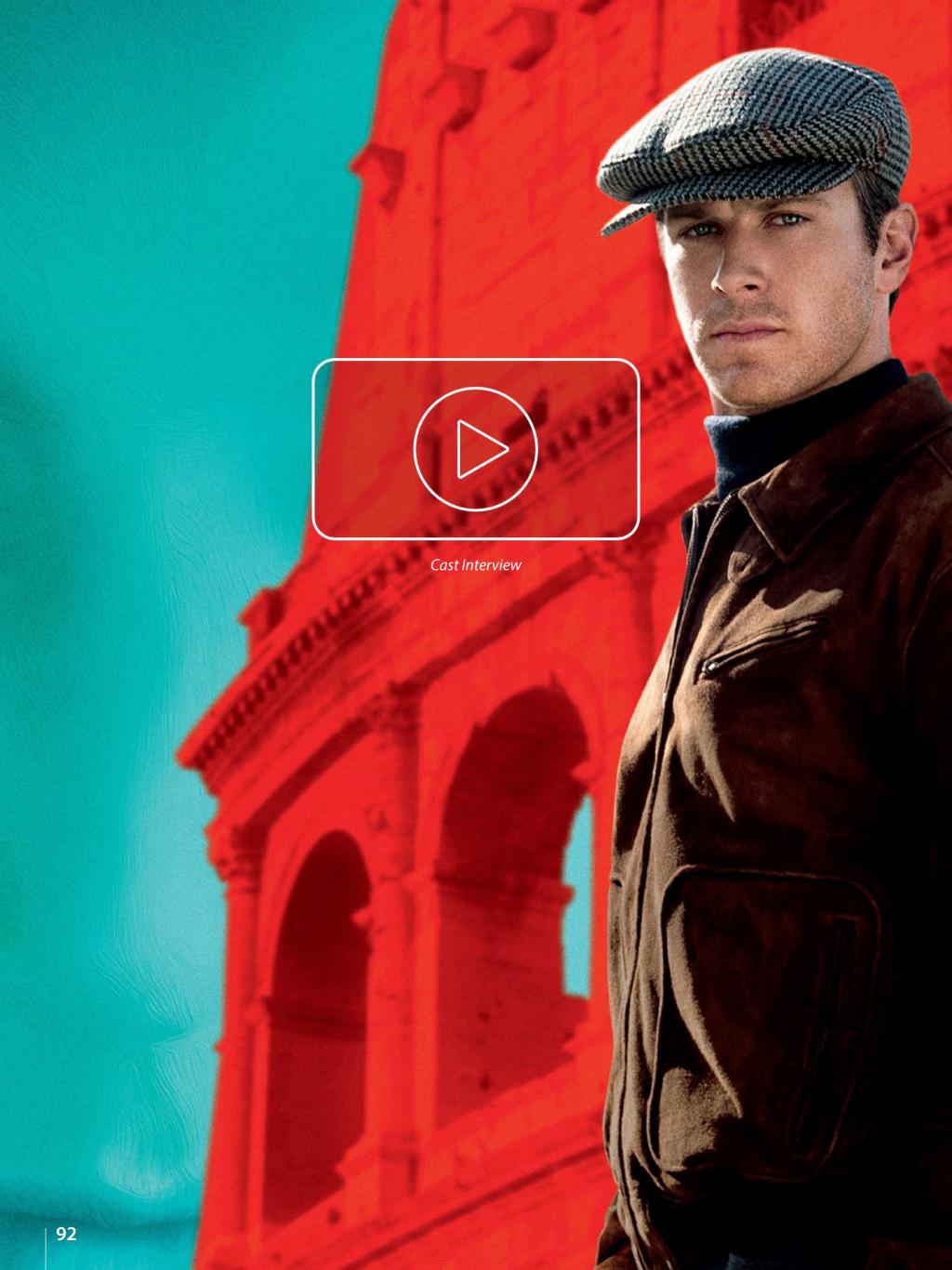




The Man from U.N.C.L.E.

A CIA agent and a KGB operative team up to defeat a mysterious criminal organisation which is working to proliferate nuclear weapons.

- **1.** Former England international football star David Beckham has a brief cameo in the movie as a projectionist.
- 2. This movie was released in the same year alongside the 007 movie Spectre (2015) and Mission: Impossible Rogue Nation (2015), all three of which are spy features that began in the 1960s.
- **3.** This movie is based off the TV show of the same name, which ran for five years (1964-1968)
- **4.** Warner Bros. had been trying to adapt the TV show for over a decade; it was a project that couldn't get the green light.
- **5.** Guy Ritchie has also directed the recent Sherlock Holmes movies (2009/2011), and cult British crime comedy films such as Lock, Stock, and Two Smoking Barrels (1998) and Snatch (2000)





Meru

A trio of professional climbers return to the treacherous mountain peak that they failed to conquer once before; a 4000 foot wall known as The Shark's Fin.

- **1.** Meru is an entirely non-fictional movie.
- **2.** The film is directed by climber Jimmy Chin's wife, Elizabeth Chai Vasarhelyi.
- **3.** Chin has been a member of the North Face Athlete Team for 14 years.
- **4.** Won the U.S. Audience Documentary Award at the 2015 Sundance Film Festival.
- **5.** Varsarhelyi has won various awards herself, including the Special Jury Prize at the 2008 Middle East International Film Festival, Best Documentary for A Normal Life at the 2003 Tribeca Film Festival, and a Special Jury Prize for Best Cinematography at SXSW 2013.

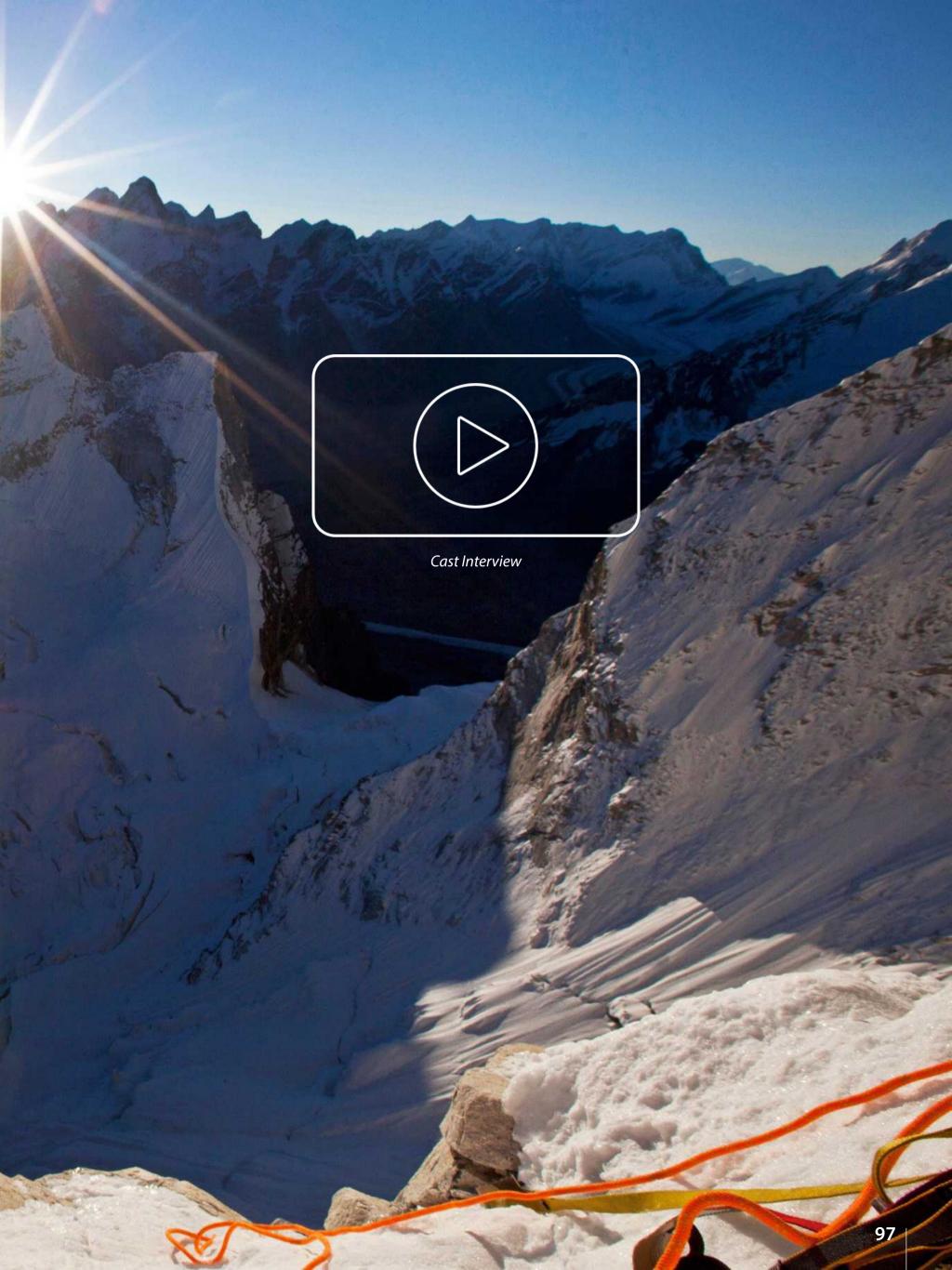


Trailer









i I Unes Review Music 98



iTunes **Preview**







Genre: Pop Released: Nov 20, 2015 11 Songs Price: \$10.99





Hello

25 Adele

The third album from multi-award winner Adele broke records even before its release, with comeback single Hello. The British singer-songwriter is famed for her no-holdsbarred power ballads, and this album is concrete evidence that her talent flourishes forever more.

- 1. Adele attended the BRIT School for Performing Arts in Technology, and graduated in 2006. She gained a recording contract from XL Recordings in the same year after a friend posted a demo Adele had recorded on MySpace.
- **2.** She has countless awards and Guinness World Records to her name, including second album 21 being the fourth best-selling album in the UK of all time.
- **3.** Adele has been singing since she was 4 years old.
- **4.** She attended the prestigious BRIT school with fellow UK pop divas Leona Lewis and Jessie J.
- **5.** Adele wrote and song on the theme song for James Bond film Skyfall. It became the first Bon theme to win at the Golden Globes, Brit Awards, and the Academy Awards.

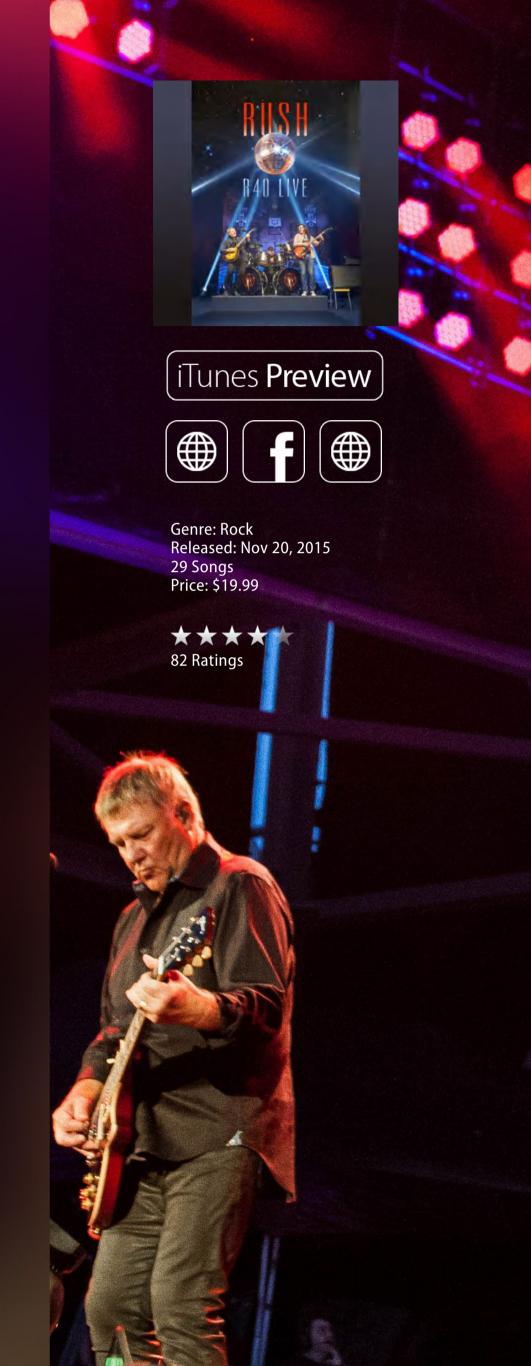




R40 Live

The live recording of legendary progressive rock band Rush's 40th anniversary tour. The R40 tour was undertaken to celebrate the 40th anniversary of the band's current and most steadfast line-up; hear it in all of its exhilarating glory here.

- **1.** The band were inducted into the Rock and Roll Hall of Fame in 2013.
- **2.** R40 may be the band's final "large-scale" tour, due to guitarist Alex Lifeson's arthritis and tendonitis. They haven't ruled out small tours, though.
- **3.** A documentary about the band, Rush: Beyond the Lighted Stage, won the 2010 Audience Award at the 2010 Tribeca Film Festival.
- **4.** The band are highly influential, going on to inspire other legendary rock acts including Metallica, Foo Fighters, and Rage Against the Machine.
- **5.** Rush have released 24 gold records, 14 platinum records, and 3 multi-platinum albums, placing them third behind The Beatles and the Rolling Stones for the most consecutive gold or platinum studio albums by a rock band.













FEDS REVISING VVARY STANCE ON SELF-DRIVING CARS

Federal transportation officials are rethinking their position on self-driving cars with an eye toward getting the emerging technology into the public's hands.

Just two years ago, the U.S. Department of Transportation struck a cautious tone. Its official policy statement, published in May 2013, says cars should be limited to testing and not "authorized for use by members of the public for general driving purposes."

With the technology's rapid development, federal policy will be updated, agency spokeswoman Suzanne Emmerling said in a written statement.





Transportation Secretary Anthony Foxx has ordered his department's National Highway Traffic Safety Administration to revise the policy "to reflect today's technology and his sense of urgency to bring innovation to our roads that will make them safer," Emmerling wrote late Monday.

It's unclear what the new policy will be, but the tone of the statement signaled that Foxx is interested in endorsing the technology.

For several years, Google and a handful of automakers including Tesla Motors, Nissan and Honda have been testing prototypes equipped with a suite of sensors and cameras on public streets and highways, mostly in California.

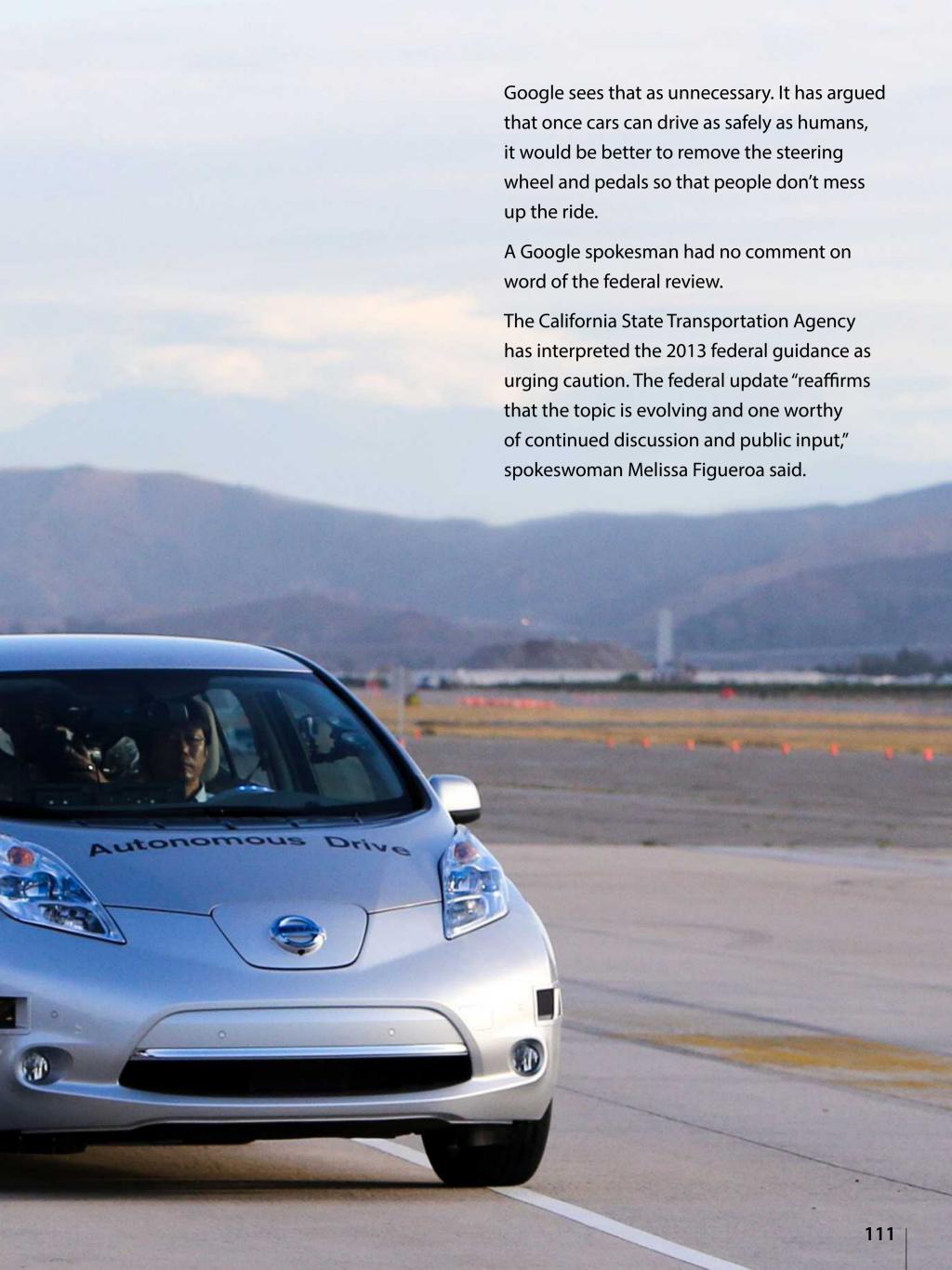
Those cars must have someone behind the wheel, ready to take over. Some have gotten into collisions, though in each case the companies say a person in another car caused the accident.

Google has advocated getting self-driving cars into the public domain as quickly as possible once the tech titan concludes the technology is safe.

While states have taken the lead on regulating self-driving cars, policymakers in Washington hold indirect sway over states' decision-making. California's Department of Motor Vehicles in particular has sought federal guidance as it struggles with how to move the cars safely from small-scale road tests to broader adoption.

Language that the federal government is revisiting specifies that in states where the public can get access to the cars, a licensed driver should be behind the wheel.

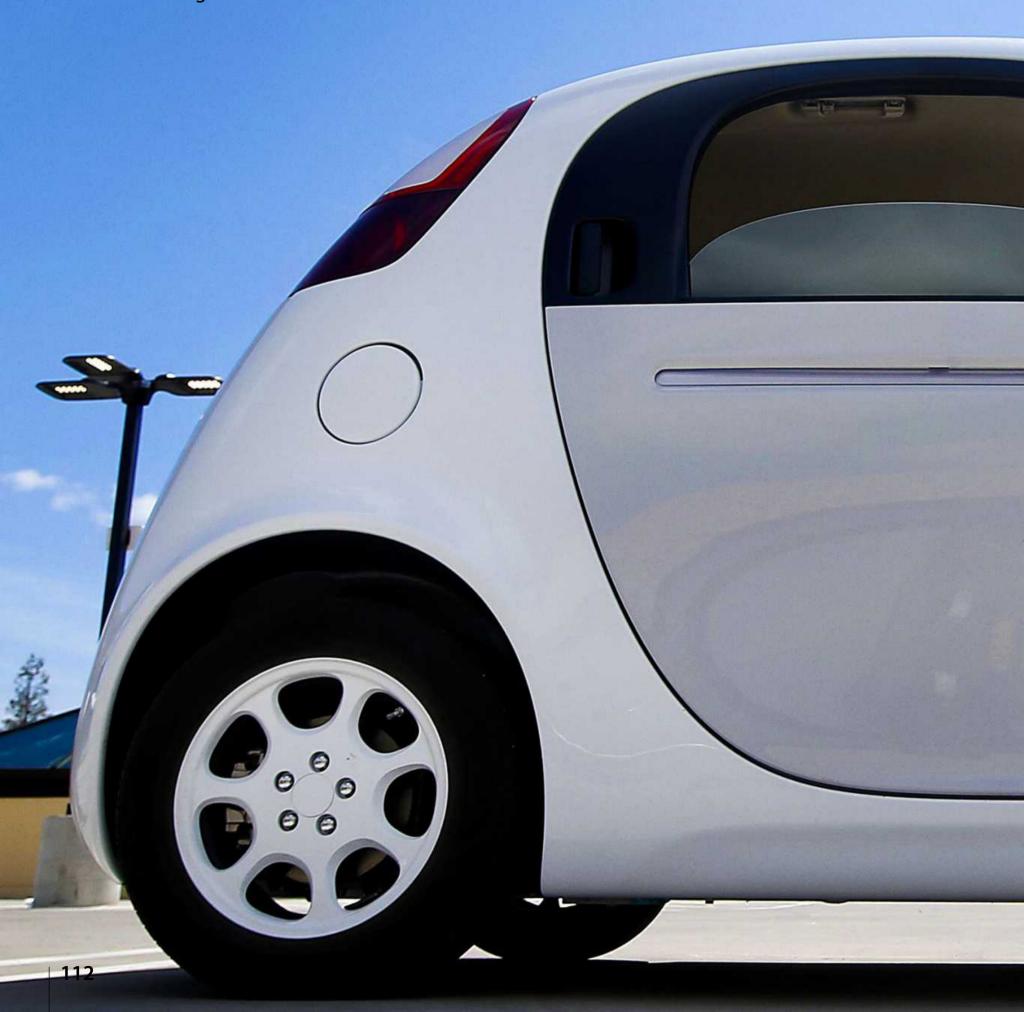




She said the Department of Motor Vehicles is working to publish draft regulations by year's end.

The draft was due last Jan. 1, but concerns such as proving that the technology is safe have held up those rules.

The nonprofit group Consumer Watchdog has been advocating restraint.



"We commend the DMV for its thoughtful and thorough approach, and urge that you continue to act in the public's interest, rather than succumbing to corporate pressure,"

John Simpson of Consumer Watchdog wrote last week in a letter to the Department of Motor Vehicles. "The important thing is getting the regulations right, not rushing them out the door."



SCIENCE

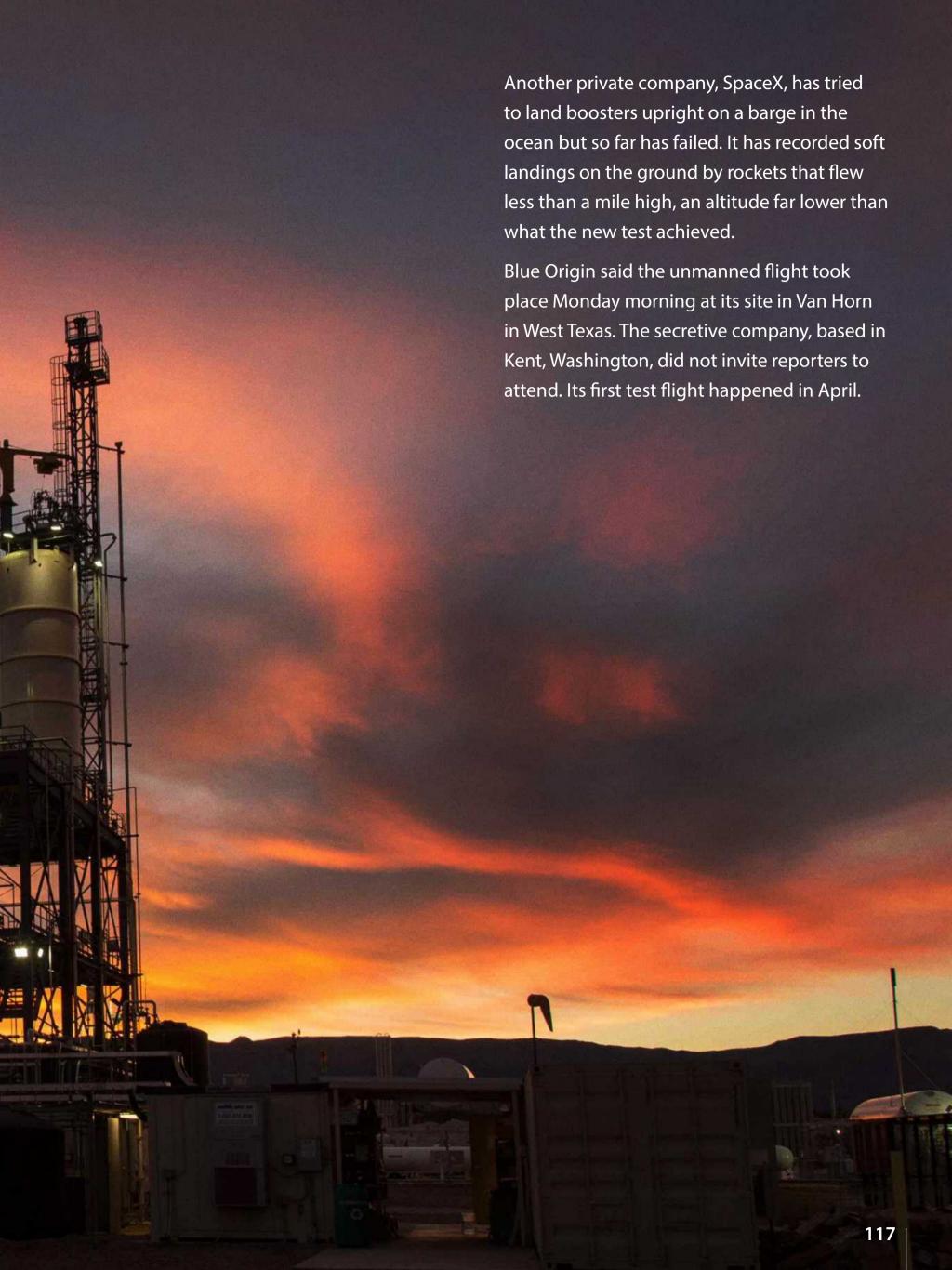


REUSABLE ROCKET: IN A FIRST, BOOSTER RETURNS SAFELY TO EARTH

A private space company announced Tuesday that it had landed a rocket upright and gently enough to be used again, a milestone in commercial aeronautics.

Reusing rockets, rather than discarding them, would be a big step toward making space flight less expensive.

The achievement produced "the rarest of beasts: a used rocket," Jeff Bezos, founder of the





















TOP TO MUSIC VIDEOS

HELLO

ADELE

WATCH ME (WHIP / NAE NAE)

SILENTÓ

HOTLINE BLING

DRAKE

WILDEST DREAMS

TAYLOR SWIFT

SORRY

LUSTIN RIFRER

FOCUS

ARIANA GRANDE

UPTOWN FUNK (FEAT. BRUNO MARS)

MARK RONSON

LIKE I'M GONNA LOSE YOU

(FEAT. JOHN LEGEND)

MEGHAN TRAINOR

WHEN I'M GONE

IOFY+RORY

WHAT DO YOU MEAN?

JUSTIN BIEBER







TOP SOOKS

CROSS JUSTICE

JAMES PATTERSON

THE GUILTY

DAVID BALDACCI

TRICKY TWENTY-TWO

JANET EVANOVICH

THE CROSSING

MICHAEL CONNELLY

ROGUE LAWYER

JOHN GRISHAM

HUSTLE

ASHLEY CLAUDY

SEE ME

NICHOLAS SPARKS

THE LIGHT BETWEEN US

LAURA LYNNE JACKSON

A BIG SKY CHRISTMAS

WILLIAM W. JOHNSTONE & J.A. JOHNSTONE

THE GIRL ON THE TRAIN

PAULA HAWKINS

UTILITIES SEE POTENTIAL IN DRONES TO INSPECT LINES, TOVVERS

U.S. utilities see great potential in the use of remote-controlled drones to do the often-dangerous work of inspecting power lines and transmission towers but strict regulations have so far slowed adoption of the technology.

The remote-controlled devices make the work of linemen safer, more efficient and less expensive, according to the Electric Power Research Institute, which last month put on a three-day workshop to help nearly a dozen utilities choose the best machines for the job. Miniature helicopter-like drones, some equipped with cameras and other sensors, conducted demonstration inspections of transmission lines at a hydroelectric plant in the Catskill Mountains.





"We want to start using drones next spring when the inspection season begins," said Alan Ettlinger, research and technology director for the New York Power Authority, who attended the workshop.

Utilities spend millions of dollars inspecting power lines, which are often in hard-to-reach places. The industry has been interested in the potential use of drones for years, but has been slower than European companies to adopt the technology because of U.S. regulatory restrictions.

While hobbyists can fly drones without certification, the Federal Aviation Administration requires special certification for commercial users. There are numerous conditions and limitations: The drone operator needs a pilot's license, the aircraft must weigh less than 55 pounds, flights can go no more than 200 feet above the ground, and the drone must be operated in the pilot's line of sight.

The FAA treats the operation of drones like any other aircraft for safety reasons and commercial operators face strict rules for getting permission to use them, according to the agency.

Seven U.S. utilities have been granted FAA approval for testing drone technology in 2015. Consumers Energy in Michigan conducted a series of tests over the summer using its own eight-rotor drone and unmanned aerial vehicles operated by outside vendors to inspect wind turbines, utility poles and transformers. The utility is part of a UAV task force under the Edison Electric Institute, the association representing U.S. investor-owned electric companies.







"When you look at the amount of information we can gain to make accurate decisions about our systems, and look at the cost and time savings, this is a huge opportunity for us," said Andrew Bordine, a Consumers Energy executive.

The UAV system Consumers Energy uses starts at about \$10,000, Bordine said. Sensor attachments range from a few thousand dollars to upward of \$100,000, he said. But the cost savings are far greater than the investment.

Consumers Energy spends several hundred thousand dollars a year to send people out in the field to do mapping and measuring of its electrical system, Bordine said. A UAV equipped with "lidar," the sensor technology used to develop driverless cars, can collect the same data and more at a small fraction of the cost and time.



"With wind turbines, you'll have a couple of guys hanging off the blades by a rope a couple hundred feet in the air to do inspections visually, at a cost upwards of \$10,000 per site," Bordine said. "We can get the same results with a UAV for \$300, without putting workers in danger."

The Bureau of Labor Statistics reports 17 fatal work injuries among utility workers in 2014, but doesn't specify the cause.

Other industries, including oil and gas drillers, pipeline operators, construction companies, and agriculture are also investigating the use of drones to make inspection and mapping tasks faster, more accurate, safer and less costly.

"The main advantage we provide in small unmanned assets is safety," said Mark Sickling, chief pilot for Cyberhawk, a drone company based in the United Kingdom that does aerial inspections for utilities and the oil and gas industry. At the workshop, Sickling demonstrated Cyberhawk's most popular drone, the eight-rotor G4 Eagle, which boasts "unprecedented flight and image stability."

The work done by Consumers Energy over the summer could also be done with a drone flying without direct human control using instructions entered into an onboard flight computer if the FAA allowed it, Bordine said.

"The FAA is looking at how to revamp its requirements to make the technology more accessible to more companies," Bordine said. "A goal for me would be to get FAA approval to work with a remote application and an autonomous flight."





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